DEVELOPMENT HYDROGRAPHIC CAPABILITIES FOR A SMALL COASTAL STATE OR WITH AN INLAND LAKE

1. Preface

Since the late '90s to today, the Italian Navy (MMI) is committed in capacity building activities for countries bordering the Mediterranean Sea with the means of Italian Hydrographic Institute (IIM) and Italian Navy Hydrographic Ships.

The activities focused above all the academic training with the Hydrographic Surveyor Courses[1] to which foreign military personnel (Officers and NCOs) from Algeria, Egypt, Tunisia Mauritania and Morocco took part, whereas other countries such as Libya, Albania and Lebanon, in addition of the academic studies they have benefited from numerous activities carried out in their respective countries of origin by hydrographic, oceanographic, geodetic and topographic surveys focused on training aspects of personnel newly formed. As far as possible, attempts have be made to collect hydrographic data with modern and high resolution methodologies to allow the involved country an increase in the updating status of charts and nautical documentations, in order to improve the knowledge and the safety of navigation in port areas and access routes.

The Italian Navy has, in the past, engaged itself in international bilateral and IHO-related cooperation with Navy Hydrographic and Oceanographic Ships and Survey Expedition of the Italian Hydrographic Institute in the following projects:

1.1 Albanian Hydrographic Pilot Project (IHO) 1998-2003 with Greece (team leader) and UK – no longer active;

1.2 Hydrographic Bilateral Commission between Libya and Italy – now suspended;

1.3 Hydrographic Bilateral Commission between Tunisia and Italy – there are in progress the possibility of academic training in Italy, the co-production of two international charts of INT Chart Portfolio scale series 1: 250.000, the exchange of hydrographic data and of nautical information in the Straits of Sicily and the possibility upon request of joint hydrographic surveys in the Tunisian areas;

1.4 Hydrographic Bilateral Commission between Lebanon and Italy – A pilot project is under way for the creation of a modern hydrographic service for the Lebanese Armed Forces with a dedicated funding from the Italian Ministry of Defense and tutoring by the Italian Hydrographic Institute; the Lebanese Hydrographic Service (*Service Hydrographique de la MArine Libanaise* – SHMAL) was created in 2015 and several countries (France, UK, Turkey, USA, Brazil) have some ongoing initiatives. France with the SHOM is Primary Chart Authority. In October 2016 Italy donated a harbor work-boat for high-resolution hydrographic survey (MB, SB, SSS) and there are in program training courses on hydrographic and cartographic systems in Lebanon and Italy. It is currently being evaluated the possibility to conduct joint hydrographic surveys in the Lebanese areas for training and

[1] Programs recognized as FIG/IHO/ICA Category A and B by International Board of Standard of Competence.

exchange of hydrographic data and nautical information in Lebanese coast areas for the upgrading and production of a first nautical chart and / or a ENC by SHMAL;

1.5 Albania and Montenegro: The two countries have requested the possibility of mentoring by Italy through the academic training in Italy, the exchange of hydrographic data and nautical information in the southern Adriatic Sea area and the possibility of carrying out joint hydrographic surveys in the Albanian and Montenegrin areas of relevance. Norway is under way in Albania with the donation of a 10 meters hydrographic boat and financing the attendance of 1 Officer at Category A Hydrographic Surveyor course in Italy;

1.6 Israel, Egypt, Algeria, and Morocco and non-Mediterranean countries (South America and the Persian Gulf): Provide academic training opportunities for foreign staff.

2. Development of hydrographic capabilities for a small coastal state or with an inland lake

In December 2014, a delegation from the Republic of Uganda visited the Italian Hydrographic Institute with the purpose of verifying the possibilities for co-operation for carrying out hydrographic surveys and the consequent compilation of cartography in the area of Lake Victoria, which its 68,870 square km of surface is the largest lake on the African continent (41,028 km² is part of Uganda).

The other party has clearly expressed the desire to acquire a minimum hydro-oceanographic autonomous capacity and eventually to establish its own Hydrographic Office through the training of staff and the purchase / donation of specialist packages.

The counterpart has clearly expressed the desire to acquire a minimum of autonomous hydrographic and oceanographic capacity and possibly set up its own Hydrographic Office through the training of personnel and the purchase / donation of specialized means / equipment.

Any development of the project by the Italian Hydrographic Institute must necessarily be subject to prior approval by the Italian Ministry of Defense and adequate funding to be sought in national and / or international funds (IHO, European, United Nations, etc.). and then discussed in dedicated bilateral meetings where to look for the explicit and concrete interest of the counterpart.

Based on the experience gained in Albania, Libya and recently with the Lebanon project, the Italian Hydrographic Institute has developed this particular requirement for a coastal state – easily transferable to a coastal state with an extension of about 200 km of the coastline, 2 / 3 of the main ports with moderate merchant traffic - according to the following steps:

2.1 verify the full understanding of the need for national hydrographic awareness to activate an independent Hydrographic Service that meets the IHO standards, or to adopt a minimum hydrographic capacity;

2.2 conduct policy / technical coordination meetings in the nation and vice versa.

2.3 the service will consist of, at regime, 20 elements (Officers, NCOs and enlisted troops or by civilian personnel for a Public Administration);

2.4 the initial academic training of hydrographic staff (minimum 10 people) will be carried out in Italy;

2.5 the national Hydrographic Service must have one (or more) survey harbor boat, and optionally convert a boat (15-20 m) into a hydrographic offshore vessel;

2.6 the purchasing of specialist hardware / software / devices for hydro-geo-topographical enhancement for the training of the above-mentioned staff;

2.7 the acquisition of the modern means necessary to provide the service will need to be further deepened with the country, especially as regards the synergize with other national agencies regarding any existing boats / systems;

2.8 carry out further training courses in Italy and in the country (2/3 weeks internships by the relevant companies with the tutoring of experienced Italian staff) on the organization of hydrographic, oceanographic and cartographic data infrastructure and on the dissemination of Maritime Safety Information (MSI);

2.9 developing capacity in the hydrographic / cartographic sector by providing a hydrographic database management infrastructure, a cartographic management / production infrastructure, an adequate knowledge of the marine information dissemination service in accordance with IHO standards and a printing / distribution infrastructure of produced nautical documentation (traditional and digital charts and publications).

The following documents will be made available as soon as completed:

a. comprehensive project for the creation of an embryonal Hydrographic Service;

b. initial costs to gain a minimal hydrographic capacity through the academic formation of n. 2 people (Category A and B) and the acquisition of a small harbor boat for hydrographic surveys.

3. Capacity Building offered by the Italian Navy / Italian Hydrographic Institute in hydrographic, oceanographic and cartographic sector and possible developments

3.1 **2nd level postgraduate Master in Marine Geomatics** (with program recognized by IBSC as FIG/IHO/ICA Category A Hydrographic Surveyor Course) in collaboration with the University of Genoa – currently underway in Genoa headquarters in English language with deadline in November 2017, has a duration of about 13 months [2](*);

3.2 **Master's Degree in Hydrography and Oceanography** (FIG/IHO/ICA Category A Hydrographic Surveyor Course with program in compliance with the minimum standards of Syllabus IHO/S-5A and the regulation for recognition of the IBSC) in collaboration with the University of Genoa – the new English-language degree program starts in October 2017 in Genoa headquarters, has a duration of about 20 months (2 academic years) (*);

3.3 **Hydrographic Surveyor Course** (with program recognized by IBSC as FIG/IHO/ICA Category B Hydrographic Surveyor Course), now in collaboration with the International Maritime Safety Security and Environment Academy (I.M.S.S.E.A.) of Genoa[3] – starting in early November 2017 at the Genoa headquarters, lasting about eight months in English (*);

3.4 **Training Stage (2/3 weeks)** focused on electronic/traditional nautical Cartography (AML, ENC, MSI, etc.) in English / Italian language to be agreed with the Italian Hydrographic Institute (*);

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2 http://www.perform.unige.it/master/786-master-geomatica-marina.html.

3 http://www.imssea.org/home/index.php/studynig-at-imssea/course-catalogue: the I.M.S.S.E.A. is finalizing a memorandum of understanding with I.H.O. in order to develop and conduct hydrographic surveying nautical cartography and marine safety information courses.

3.5 Possibility to enable **international Doctoral Research (Ph.D.)** in collaboration with Italian and foreign universities (*) – currently underway the International Doctorate (Ph.D.) in Earth and Marine Sciences (EMAS) for the academic year 2016/2017 (XXXII Cycle) offered by the University of Ferrara in collaboration with the University of Cadiz (Spain) – attended by an Italian and a Lebanese military officers[4];

3.6 Possibility to enable **2nd level postgraduate Master in Marine Sciences** (Ocean Physics and Technology) in collaboration with the CONISMA (University of Bologna and University Pathenope of Naples) – the Master is in English, focused in the oceanographic field, lasting about 12 months and hopefully being developed from October 2017 (*);

3.7 Possibility of **embarkation aboard a Hydro-Oceanographic Ship** (**) – 2/3 weeks period to be determined (not July / August / September);

3.8 **Hydrographic, Geodetic, Topographic, Oceanographic and Geophysical surveys Project** in port areas, access routes, coastal and deep-sea by means of Hydrographic and Oceanographic Ships and / or Italian Hydrographic Institute Expedition (**) – 2/3 weeks period to be determined;

3.9 **Co-Production of International Nautical Charts Project (INT - traditional / digital)** in port areas, access routes, coastal and deep sea with the Italian Hydrographic Institute (**);

3.10 **Definition of Bilateral Technical Agreement**[5] for cooperation in the field of hydrography, oceanography and nautical cartography according to the IHO standards (**) that encompasses the activities referred to previous items.

(*) open to Italian and foreign civil / military personnel.

(**) upon request from the interested country in the context of international cooperation among Navies.

[4] http://www.unife.it/studenti/dottorato/concorsi/emas-engl.

[5] http://www.iho.int/mtg_docs/rhc/SAIHC/SAIHC8/SAIHC8-5.2D-Solas_generic_arrangement.pdf.